



"Making a Difference"

**COUNTY OF SAN LUIS OBISPO
DEPARTMENT OF PLANNING AND BUILDING
STAFF REPORT**

PLANNING COMMISSION

MEETING DATE September 23, 2004	CONTACT/PHONE Steve McMasters, Project Manager, 781-5096	APPLICANT Plains Exploration and Production (PXP)	FILE NO. D010386D
SUBJECT Request by Plains Exploration and Production (PXP) to expand existing oil production operations at the Arroyo Grande Oil Field by constructing 95 new production wells, 30 steam injection wells, and 3 steam generators. The project will require the construction of four new well pads and the modification of 15 existing pads totaling approximately 7 acres of disturbance. The project will increase oil production at the site from approximately 1850 barrels per day to 5,000 barrels per day. The project is located in Price Canyon, east and west Price Canyon Road and Pismo Creek, approximately 3 miles northeast of the City of Pismo Beach, midway between Highway 101 and Highway 227.			
RECOMMENDED ACTION 1. Certify the proposed Final Environmental Impact Report in accordance with the applicable provisions of the California Environmental Quality Act, Public Resources Code Section 21000 et seq. and the findings listed in Exhibit C. 2. Approve Conditional Use Permit D010386D based on the findings listed in Exhibit A and the conditions listed in Exhibit B.			
ENVIRONMENTAL DETERMINATION The Environmental Coordinator after completion of the initial study finds that there is evidence that the project may have a significant effect on the environment, and therefore an Environmental Impact Report was prepared (pursuant to Public Resources Code Section 21000 et seq., and CA Code of Regulations Section 15000 et seq.) on September 1, 2004, for this project. Mitigation measures are proposed to address land use, aesthetics, air quality, biological resources, cultural resources, geology and soils, paleontological resources, noise, hazards.			
LAND USE CATEGORY Agriculture, Rural Lands	COMBINING DESIGNATION Flood Hazard, Energy and Extractive Resource (EX)	ASSESSOR PARCEL NUMBER 044-201-002 044-241-001	SUPERVISOR DISTRICT(S) ① ② ③ ④ ⑤ All
PLANNING AREA STANDARDS: EX - Development Plan approval is required for any expansion of existing oilfield operations in Price Canyon, Tiber Canyon, and in the hills off Ormonde Road into adjacent land use categories.			
EXISTING USES: Oil production and cattle grazing.			
SURROUNDING LAND USE CATEGORIES AND USES: <i>North:</i> Agriculture, Rural Lands/grazing, scattered residences <i>East:</i> Rural Lands/scattered residences <i>South:</i> Agriculture, Rural Lands/grazing <i>West:</i> Agriculture/grazing			
OTHER AGENCY / ADVISORY GROUP INVOLVEMENT: The project was referred to: Public Works, Environmental Health, Ag Commissioner, County Parks, CDF, City of Pismo Beach, APCD, RWQCB, Department of Conservation, Fish and Wildlife, NMFS Department of Fish and Game, Cal Trans			
TOPOGRAPHY: Moderately to steeply sloping		VEGETATION: Riparian, chaparral, ruderal, oak woodland	
PROPOSED SERVICES: Water supply: On-site well Sewage Disposal: N/A Fire Protection: CDF/County Fire		ACCEPTANCE DATE: September 27, 2002	

ADDITIONAL INFORMATION MAY BE OBTAINED BY CONTACTING THE DEPARTMENT OF PLANNING & BUILDING AT:
COUNTY GOVERNMENT CENTER ♦ SAN LUIS OBISPO ♦ CALIFORNIA 93408 ♦ (805) 781-5600 ♦ FAX: (805) 781-1242

PROJECT HISTORY

According to unofficial records, the Arroyo Grande oil field has been an actively producing field since 1906. The California Department of Conservation officially began recording oil and gas wells for the area in 1919. Between 1919 and 1980, roughly 129 oil wells were drilled in the field. Previous EIRs have been prepared for past expansion of the oil field, including *Final Environmental Impact Report for the Proposed Arroyo Grande Thermal Project, Teal Production Company (1978)*, and *Arroyo Grande Thermal Project, Phase II Operations (ERCO 1981)*. In 1978, Teal Petroleum (Teal) obtained approval from the San Luis Obispo County Planning Commission (SLOPC) for the expansion of oil field operations (Phase I). The permit granted the drilling of 54 wells and the installation of associated equipment. Teal Petroleum was absorbed by Grace Petroleum shortly thereafter.

Grace Petroleum proposed a Phase II expansion. The subsequent EIR considered the potential environmental effects of the entire Arroyo Grande Oil field. In 1982, The County certified the EIR and approved a Phase II Project consisting of 40 wells and 1 steam generator. At that time, the County conceptually approved, but did not guarantee, an additional 160 wells and 3 steam generators. The conceptual approval included a delineation of Phases III, IV, and V and included only the facilities that would be added during each phase. Subsequently, Grace was acquired by Shell Western Petroleum, Inc.

In 1994, Shell Western Exploration and Petroleum, Inc., received approval from the SLOPC for a Development Plan to allow expansion of the oil field by drilling 65 additional producing wells and installing three steam generators and accessory facilities with an extended phasing schedule (Phase III). In 1997, the area was acquired by Stocker Resources, Inc. (Stocker), which currently operates the facility. Stocker recently underwent change of ownership and is now Plains Exploration & Production Company (PXP).

This project completes the build-out anticipated in the 1982 conceptual plan (total of 160 wells; 3 steam generators). Any additional facilities proposed in the future will be subject to a new conceptual "Master Plan".

PLANNING AREA STANDARDS

The following sections discuss the San Luis Bay Area Plan (Inland) planning area standards that apply to this project.

1. EX - Development Plan approval is required for any expansion of existing oilfield operations in Price Canyon, Tiber Canyon, and in the hills off Ormonde Road into adjacent land use categories.

The applicant is seeking Development Plan (Conditional Use Permit) approval for the Phase IV expansion of operations.

2. Sloping Sites - Except for lands in the Agriculture category east of Montana de Oro, Development Plan proposals for sites with varied terrain are to include design provisions for concentrating developments on moderate slopes, retaining steeper slopes visible from public roads undeveloped.

Following drilling and construction of well pumper units, the applicant will be required to plant native vegetation to screen/shield the new wells from motorists traveling along Price Canyon Road. In addition, many of the new wells will be co-located with older wells on existing pads.

3. Undergrounding – Development Plan Projects. All projects requiring Development Plan approval are to provide for underground utilities unless the Planning Commission determines either that: the proposed development will be of low intensity or in an isolated location; or that supporting overhead utilities will not be visible from public roads; or that overriding operational, economic, or site conditions of the project warrant waiver of this requirement.

The proposed project would not require any new utility lines; the existing lines, which are above ground, would serve the expanded Phase IV project. Since no new utility lines are proposed, this standard would not apply to the project.

COMBINING DESIGNATIONS

Flood Hazard - The San Luis Bay Inland Area Plan also notes that Pismo Creek, which runs through the middle of the Phase IV area, has the combining designation of Flood Hazard, and states (Chapter 7, Section B, page 7-2):

“These drainage courses should be maintained in their natural state and native vegetation and habitats retained.”

The proposed project activities will occur entirely within the Phase III project boundary. As shown in Figure 4-4 of the FEIR, Pismo Creek runs directly through the middle of the project area. A 100-foot buffer from the creek will be observed for project activities (see Figure 4-4 of the EIR). By observing this exclusion zone, Pismo Creek will be maintained in its natural state and native vegetation and habitats of the creek will be retained. (See Section 5.5 of the EIR for additional discussion.)

EX - The Framework for Planning discusses (Chapter 7, Section A, page 7-9 and 7-10) the general objectives for the combining designation called Energy and Extractive Area (designated “EX”):

1. Following approval of an energy or resource extraction project, the County should initiate an amendment to the Land Use Element to apply this combining designation to the property to ensure compliance with the applicable standards of the Land Use Ordinance (Ord. 2498, Amended 1991).

The appropriate combining designation (Energy and Extractive Uses) has already been applied to the project area.

2. Extraction operations and energy facilities should be provided with adequate buffering and screening from adjacent land uses.

Since the project would increase the intensity of oil development entirely within a much larger area (1,450 acres) already developed to this purpose, buffering and screening from adjacent land uses is already present to some degree. However, as discussed under visual impacts (Section 5.3 of the EIR), some elements of the proposed project will be visible from both Price Canyon Road and several residences on a bluff top about three-quarters of a mile to the northwest. Due to intervening topography and existing vegetation, adequate buffering and screening is currently present.

3. Applications for proposed extraction operations should include plans for preserving the long-term productivity of the site as well as site restoration after termination of extraction operations.

As a condition of approval, the applicant will be required to submit a plan to preserve the long-term productivity of, and to eventually restore the site after oil extraction operations are completed.

4. Extraction site access routes should not create nuisances or hazards for adjacent properties.

Access roads into the site from Price Canyon Road and Ormonde Road appear to be well maintained. The traffic analysis in this EIR (Section 5.2) recommends that warning signs be provided on Price Canyon Road prior to the construction phase to notify through traffic of large, slow-moving truck traffic entering and exiting the site. Since no other hazards associated with the project have been identified, the adoption of this mitigation measure would make the project consistent with this objective.

5. Wherever possible, oil and gas drilling production, and processing should be in consolidated locations, rather than spread out over numerous sites.

The project would only increase oil development activities within an existing oil development area; it would not expand into other areas. Furthermore, oil produced under the expanded operations would be processed at the existing oil processing facilities. Therefore, the project is consistent with this objective.

6. Exploratory gas and oil wells should be subject to review procedures separate from those for development/production operations.

No exploratory wells are proposed as part of the project. The project includes only producer and injector wells; therefore, this objective is not pertinent to the project.

ENVIRONMENTAL DETERMINATION

An Environmental Impact Report (EIR) was prepared for the proposed project. The Final EIR addressed the proposed project's potential impacts on land use, aesthetics, air quality, biological resources, cultural resources, geology and soils, paleontological resources, noise, and hazards. It was determined that the mitigation measures applied to each of the impact areas would reduce the impacts to a less than significant level. The Final EIR also considers several project alternatives (See FEIR section 6.0)

MAJOR ISSUES

Major issues with this project involved assessing the projects impact to groundwater, air quality, and biological resources. The geology of the area includes oil bearing strata exposed at the ground surface as well as in contact with the groundwater. Because oil naturally contacts groundwater in this region it is difficult to determine the projects impacts on water quality. A water quality analysis was performed as part of the EIR preparation and the results compared to a previous sampling of the same wells. No significant changes had occurred. In addition, the level of TRPH (total recoverable petroleum hydrocarbons) was non-detectable. (See FEIR Appendix I). The conditions of approval require the applicant to periodically test water quality and report the results to appropriate agencies.

Air quality impacts were evaluated by the Air Pollution Control District. The applicant will be required to mitigate for construction-related air quality impacts and any fugitive emissions related to oil pumping and distribution. Hydrogen sulfide, the source of odors emanating from the site, occurs naturally at this location (where oil strata is exposed at the surface), but may also occur due to leaks at the facility infrastructure including pipes and fittings. All facilities are inspected quarterly with hand-held detectors, and will continue to be used to detect leaks that may increase odors in the surrounding region. (See FEIR section 5.4). This mitigation measure will ensure odors do not increase as a result of the project.

This site supports a diverse number of native habitats including oak woodland, riparian and grassland. Sensitive plant and animal species were found on site as well. Mitigation developed through the EIR process includes establishing creek setbacks, replanting vegetation, performing nesting bird surveys, and establishing an easement over a portion of the site that can be used to propagate sensitive plants/habitat lost to development. (See FEIR section 5.5)

LAND USE ISSUES

The development and operation of oil fields have the potential to cause significant environmental impacts to a wide range of resources. In particular, oil fields inherently conflict with most other land uses. The General Plan recognizes this, and specific provisions have been made to attempt to address the potential for conflict. This is accomplished primarily through the Energy or Extractive Area (EX) combining designation. The purpose of the EX combining designation as defined in Framework for Planning is:

EX - ENERGY OR EXTRACTIVE AREA

Purpose:

- 1. To identify areas where mineral or petroleum extraction occurs, is proposed to occur, or where petroleum or mineral reserves of statewide significance exist, as defined by the State Geologist.*
- 2. To protect existing extraction areas so that land uses incompatible with continuing extraction activities will not be developed on adjacent properties.*
- 3. To protect existing energy production areas and regional production facilities so that incompatible uses will not be developed on adjacent properties such that the energy production facilities may become dangerous or detrimental to public health and safety.*
- 4. To protect energy production areas from encroaching urban development or other incompatible land uses that may hinder their continued operation.*

Some of the comment letters in the Final EIR reflect the fact that other uses, particularly residential development, are increasing in the area. The EIR recommends measures that will help reduce conflicts with other land uses, but the EX combining designation clearly gives precedent to the oil field extractive uses in this area. The proposed Phase IV, providing for continuing energy extraction within the existing oilfield boundaries is consistent with the intent of the EX combining designation.

STAFF COMMENTS

A trail easement required as a condition of approval during the last permit has been surveyed

and offered to the County. Steps are underway to formally accept the easment dedication. Phase IV may not proceed to construction until the easement has been formally accepted by the Board of Supervisors. (See conditions of approval)

AGENCY REVIEW

Public Works- Concur with traffic study; require erosion control

Environmental Health - No comment

Ag Commissioner- No comment

County Parks - Trail easement required

CDF - Concerns water pressure, and oil-field specific hazards. Requesting offset fees to cover oil-field related training costs, and hydrogen sulfide detectors.

APCD - Performed air quality analysis and recommended various mitigation measures.

Department of Fish and Game - Assisted in development of biological mitigation

Cal Trans - No comment

RWQCB - Concerns with water quality, sedimentation - recommended mitigation measures

Department of Conservation - Questioned Williamson Act status (properties are not under contract), and provided comments regarding well-blow-outs and agency responsibility.

LEGAL LOT STATUS

The 2 lots were legally created by a recorded map at a time when that was a legal method of creating lots.

Staff report prepared by Keith Miller and Steve McMasters and reviewed by James Caruso.

FINDINGS - EXHIBIT A

Environmental Determination

- A. The Planning Commission finds that changes or alterations have been incorporated into the project to mitigate or avoid significant impacts to the greatest degree practicable. These changes or alterations include mitigation measures and project modifications outlined herein and set forth in more detail in the PXP Phase IV Development Project Final EIR and Exhibit C (CEQA Required Findings).

Conditional Use Permit

- B. The proposed project or use is consistent with the San Luis Obispo County General Plan because the use is an allowed use and as conditioned is consistent with all of the General Plan policies.
- C. As conditioned, the proposed project or use satisfies all applicable provisions of Title 22 of the County Code.
- D. The establishment and subsequent operation or conduct of the use will not, because of the circumstances and conditions applied in the particular case, be detrimental to the health, safety or welfare of the general public or persons residing or working in the neighborhood of the use, or be detrimental or injurious to property or improvements in the vicinity of the use because the proposed development, as conditioned, do not generate activity that present a potential threat to the surrounding property and buildings. This project is subject to Ordinance and Building Code requirements designed to address health, safety and welfare concerns.
- E. The proposed project or use will not be inconsistent with the character of the immediate neighborhood or contrary to its orderly development because it has been in operation at this location for over 100 years and the exterior boundary will not increase due to this project.
- F. The proposed project or use will not generate a volume of traffic beyond the safe capacity of all roads providing access to the project, either existing or to be improved with the project because the project is located on Price Canyon Road, a collector road constructed to a level able to handle any additional traffic associated with the project.

EX - Combining Designation

- G. The proposed use will not adversely affect the continuing operating or expansion of the energy or extraction use because it represents an expansion of the extraction use.

EXHIBIT B - CONDITIONS OF APPROVAL

Approved Development

1. This approval authorizes:
 - A. The construction of 95 new producer wells,
 - B. The construction of 30 new steam injection wells,
 - C. The construction of 3 steam generators,
 - D. Construction of 4 new well pads, and
 - E. Modification of 31 existing well pads.
2. **Prior to commencement of drilling of each oil well or steam generator** authorized by this Conditional Use Permit, the applicant shall submit one of the following:
 - A. A grading permit application, or
 - B. If development does not require a grading permit, the applicant shall submit all information required by these conditions of approval to the Planning and Building Department and request issuance of a "Notice to Proceed".

Phasing Schedule

3. A total of ten years is allowed for the development of the 95 producer and 30 steam injector wells, and the 3 steam generators.
4. At the end of the ten years, any wells or steam generators not yet completed shall require review and approval of a new Conditional Use Permit.

Permitting

5. **Prior to issuance of the first Notice to Proceed or grading permit**, the applicant shall submit a copy of all permits/authorizations required by other agencies, including, but not limited to the Air Pollution Control District, the Regional Water Quality Control Board, the Department of Conservation, and the Department of Fish and Game.

Mitigation Monitoring

6. **Prior to issuance of the first Notice to Proceed or grading permit**, the applicant shall retain a mitigation monitor approved by the county to monitor compliance with all conditions of approval.

Recreation

7. **Prior to issuance of the first Notice to Proceed or grading permit**, the applicant shall have recorded an offer of dedication for a 20 foot wide multi-purpose trail

easement through the property subject to Planning Director review and approval. The offer may be accepted after the cessation of oil field activities at the expiration of land use permit authorizations or another time mutually agreed upon by the applicant and the Planning Director.

Land Use

8. **Prior to issuance of the first Notice to Proceed or grading permit**, the applicant shall submit to the County for approval a plan to preserve the long-term productivity of the site and to eventually restore the site after oil extraction operations are completed. This shall include provisions to ensure eradication of exotic plant species (i.e., pampus grass, tree tobacco, etc.) within the dedicated easement and for controlling the spread of exotic species throughout the Phase IV expansion area.

Traffic and Circulation

9. Trucks (delivery, hauling and transportation trucks) should be scheduled outside the A.M. and P.M. peak period (7:00 to 9:00 A.M. and 4:00 to 6:00 P.M.) to the extent feasible (no increase in trucks trips will occur during the A.M. and P.M. peak periods);
10. Construction related traffic shall use on-site roads wherever possible; and,
11. Warning signs should be placed on Price Canyon Road prior to construction to notify through traffic of trucks entering and exiting the site.

Aesthetics

12. Following drilling and construction of the well pumper units, the applicant will be required to plant native vegetation to shield/screen the new wells from a motorists traveling along Price Canyon Road. Details of such planting will be specified in the revegetation plan, which the applicant will be required to prepare prior to issuance of the Conditional Use Permit by the County (See Biological Resources #). The well pumper units will be painted with a flat green non-reflective paint that blends with the surrounding landscape of the project site.

Air Quality

13. **Prior to issuance of the first Notice to Proceed or Grading permit**, a Drilling Emissions Reduction and Monitoring Plan shall be developed, approved by the County and fully implemented. The Plan shall specify the emissions control measures to be implemented on each emission source, the expected reduction for each criteria pollutant, the period the emissions control measures are to be in place, and a quarterly summary of the emissions reductions. The summary shall include sufficient information for the APCD to verify the emissions reductions have occurred. Potential emission reduction measures may include:
 - A. Use of well pad construction and drilling scenarios to reduce peak emissions;

- B. Use of engines meeting the Tier 1 or 2 Federal emissions standards for non-road applications;
 - C. Installation of diesel oxidation catalysts (up to 25 percent NOx reduction);
 - D. Installation of diesel reduction catalyst/catalyzed diesel particulate filter system (25 percent Nox reduction);
 - E. Use of PuriNOx fuel by Lubrizol (14 percent NOx reduction);
 - F. Use of Aquazole fuel (14 percent NOx reduction); and
 - G. Use of water-emulsified diesel fuel by Clean Fuels Technology (15 percent Nox reduction).
14. Dust generated by construction activities shall be kept to a minimum by full implementation of the following measures:
- A. During clearing, grading, earth moving, excavation, or transportation of cut or fill materials, water trucks or sprinkler systems shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease;
 - B. During construction, water trucks or sprinkler systems shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas in the morning and after work is completed for the day and whenever wind exceeds 15 miles per hour;
 - C. Stockpiled earth material shall be sprayed as needed to minimize dust generation.
 - D. During construction, the amount of disturbed area shall be minimized, and onsite vehicle speeds should be reduced to 15 mph or less;
 - E. Exposed ground areas that are planned to be reworked at dates more than one month after initial grading should be sown with a fast-germinating native grass seed and watered until vegetation is established;
 - F. After clearing, grading, earth moving, or excavation is completed, the entire area of disturbed soil shall be treated immediately by watering or revegetating or spreading soil binders to minimize dust generation until the area is paved or otherwise compacted so that dust generation is minimized;
 - G. Grading and scraping operations shall be suspended when wind speeds exceed 20 mph (one hour average);
 - H. Rumble pads (minor road obstructions designed to dislodge accumulated earth material from trucks) with spray washers shall be installed and maintained at all construction entrances; and
15. Project emissions remaining following implementation of the above mitigation measures shall be offset through contribution to an off-site mitigation fund. The fund is managed by the APCD and used to finance regional emission reduction projects such as bikeways, vehicle scrapping programs, diesel bus conversions, agricultural engine replacements and similar activities. Therefore, project emissions would be offset on a regional basis through applicant-funded off-site projects that would result in emissions reductions. Based on past

experience the APCD has determined that \$8,500 is required per ton NOx reduced. These funds would be used by the APCD to purchase clean-burning engines and other equipment/facilities that would result in a decrease in emissions in the County. The financial contribution would be paid on a per well basis, based on the number of wells to be drilled during a known period. The dollar amount shall be based on offsetting excess emissions (greater than 2.5 tons NOx per quarter) at, \$8,500 per ton and 0.65 tons NOx per well.

16. The proposed steam generators would be lo-NOx designs and comply with APCD Rule 430. No further emission controls are considered feasible. However, emissions can be offset through the contribution to an off-site mitigation fund to finance regional emission reduction projects such as bikeways, diesel bus conversions, agricultural engine replacements and similar activities; or,

Alternatively, the project proponent may elect to reduce emissions from existing steam generators and other fuel burning equipment such as heater treaters, tank heaters and glycol reboilers. Emissions could be reduced to a level of less than significant through a combination of these measures.

17. **During operations**, the applicant shall fully implement the provisions of APCD Rule 417, which requires quarterly monitoring for leaks, and repair of leaks completed with 14 days for minor gas leaks, 5 days for major gas leaks and 2 days for liquid leaks.

18. **Prior to construction of the steam generators** the applicant shall prepare a comprehensive facility-wide health risk assessment (HRA) according to the Emission Inventory Criteria and Guidelines for the "Hot Spots" program. The Assessment will include a facility-wide inventory of toxic air contaminants (including sulfur compounds), air dispersion modeling to determine ground-level concentrations at adjacent residences and application of unit risk factors to identify cancer and non-cancer health risk. Should the results of the health risk assessment indicate unacceptable health risk, mitigation measures may be required to reduce health risk by reducing ground-level concentrations of toxic air contaminants, such as:

- A. Limiting simultaneous operation of steam generators; and
- B. Limiting use of landfill gas as fuel.

19. **Prior to issuance of the first Notice to Proceed or Grading permit**, an Odor Monitoring and Complaint Response Plan shall be developed and reviewed and approved by the APCD. The Plan may include the following elements:

- A. Screening program of employees for olfactory acuity to identify odor monitors, using a series butanol/water solutions;
- B. Training program for odor monitors to recognize odors and identify problem areas (unusually strong odors);
- C. Protocol to investigate odors identified by employees, including enhanced fugitive hydrocarbon monitoring and follow-up olfactory monitoring;
- D. Procedures to reduce identified odors through equipment maintenance, equipment replacement, operating procedures or specific odor controls;

- E. Procedures to respond to odor complaints including responsible employees, collection of process data, meteorological data, olfactory monitoring data, data analysis and reporting back to the APCD; and
- F. Contingency measures to address chronic odor complaints which may include collection of samples for laboratory analysis or dilution-to-threshold equipment (Scentometer, or equivalent) to quantify odors and more precisely identify sources.
- G. Utilization of monitoring equipment.

Biological Resources

20. Construction and drilling operations shall be conducted prior to the initiation of nesting, or after the completion of nesting to avoid any potential impact to migratory birds. Specifically, the following measures should be implemented:
- A. Well pad grading operations shall be conducted prior to the initiation of nesting, or after the completion of nesting to avoid any potential impact to migratory birds. Therefore, clearing and grading of well pads, and all drilling operations should be conducted between the months of August and March.
 - B. If Measure A is infeasible, pre-construction surveys shall be conducted between February 15 and August 15 to identify potential bird and raptor nesting sites
 - C. If active nest sites of common bird species protected under the Migratory Bird Treaty Act (e.g., northern mockingbird, house finch, etc.) are observed within the vicinity of the project site, then the project shall be modified and/or delayed as necessary to avoid direct take of the identified nests, eggs, and/or young; and,
 - D. If active nest sites of raptors and/or species of special concern (e.g., northern harrier, horned lark, etc.) are observed within the vicinity of the project site, then CDFG shall be contacted to establish the appropriate buffer around the nest site. Construction activities in the buffer zone shall be prohibited until the young have fledged the nest.
21. The following mitigation measures are recommended to avoid and/or minimize impacts to special-status species known to occur or with the potential to occur within the existing and newly proposed well pads during construction. This includes protective measures to avoid and/or minimize impacts to Well's Manzanita during the construction phase of the project:

General Measures

- A. All equipment staging areas, construction-crew parking areas, and construction access routes shall be established in previously disturbed or developed;
- B. Exclusionary fencing will be erected at the boundaries of all construction areas to avoid equipment and human intrusion into adjacent habitats with emphasis on protection of areas containing special-status species. The exact location of

exclusionary fencing for each construction area shall be determined by a County-approved biological monitor. The fencing shall remain in place throughout the construction and drilling phase for each individual pad;

- C. A County-approved biological monitor shall conduct a worker orientation for all construction contractors (site supervisors, equipment operators and laborers) which emphasizes the presence of special-status species within the project site, identification, their habitat requirements, and applicable regulatory policies and provisions regarding their protection, and measures being implemented to avoid and/or minimize impacts;
- D. During nighttime drilling and/or construction activities, all equipment lighting (i.e., drilling rigs, etc.) shall be shielded away from adjacent wildlife habitat areas and sky to minimize lighting/glare impacts of wildlife.

Protective Measures for Special-Status Plants:

- E. Due to the fluctuation in annual plant populations, **Spring botanical surveys shall be conducted annually** by a County-approved biologist to update the location of special-status plant species populations on project plans until the end of the construction period (as illustrated on Figure 5.5-2 of the Final EIR). Annual botanical survey results and documented fluctuations in populations shall be added cumulatively to project plans each year (i.e., all newly discovered populations shall be added to existing populations documented in previous years). All mapped populations shall be clearly fenced off with exclusionary fencing prior to construction in those areas. If areas supporting Pismo Clarkia and/or other sensitive plant species are determined by the County to be unavoidable then seed shall be collected from selected plants in impact areas and utilized to restore habitat in a pre-designated restoration site;
- F. **Prior to construction of well pad 66C**, to avoid the removal of an estimated 163 Well's manzanitas, newly proposed well pad Signal 66C shall be realigned and reduced in size to allow installation of the two wells within existing pre-disturbed areas (i.e., existing roadways and well pad areas). Specifically, Signal 66C shall be realigned westward toward an existing access roadway and well pad Signal 147 to avoid a dense stand of Well's manzanita; and,
- G. Utilizing the manzanita survey data collected in 2003, final project plans shall clearly illustrate the location of Well's manzanita to be removed as part of the project and all manzanita to remain within 25 feet of construction activities. Prior to any construction, grubbing or tree removal, each manzanita within the vicinity of the subject pads shall be clearly marked for removal or protection.

Protective Measures for Special-Status Wildlife:

- H. A County-approved biologist shall conduct pre-construction surveys to determine presence/absence of California horned lizard within and adjacent to individual well pads containing suitable chaparral and/or scrub habitat. Surveys shall only be required during the active period of California horned lizards (generally April

through September). If California horned lizards are identified adjacent to and/or within work areas, then hand rakes or an equivalent shall be utilized by biological monitors to scarify the ground surface and encourage the horned lizards (and other wildlife) to vacate the immediate area prior to construction. Alternatively, sampling composed of drift fences shall be used to capture horned lizards. As necessary, the County-approved biological monitor shall physically relocate California horned lizard to suitable habitat located outside the construction zone. Exact procedures and protocols for relocation shall be based upon pre-project consultation with CDFG;

- I. A County-approved biological monitor shall be on-site during all vegetation clearing and shall periodically monitor the project site during construction activities to inspect protective fencing, equipment staging areas, and physically relocate/remove any special-status wildlife species entering the construction zone (i.e., California horned lizard, etc.). All special-status species shall be relocated to suitable habitat located outside the construction zone by a qualified biologist. Exact procedures and protocols for relocation shall be based upon pre-project consultation with CDFG; and,
 - J. Nesting bird surveys shall be conducted between February 15 and August 15 to identify nest sites of special-status bird species including American peregrine falcon, horned lark, northern harrier, and Cooper's hawk.
22. The following mitigation measures are recommended to avoid and/or minimize impacts to special-status species known to occur or with the potential to occur within the Pismo Creek watershed:
- A. Construction (e.g., clearing and grubbing of vegetation, rough grading, drilling, etc.) of any previously undisturbed area located within a buffer zone of 100 feet from both sides of Pismo Creek's banks (San Luis Obispo County Land Use Ordinance 22.07.166) shall be prohibited. **Pismo Creek and the required 100-foot buffer shall be illustrated on final project plans and adhered to during the construction period;**
 - B. Both Morehouse 303 and Signal 151 are within the 100-foot creek setback; a portion of Signal 151 is also within the 100-year floodplain. These two pads already exist and have been previously disturbed, such that annual grassland represents the dominant vegetation cover at these sites. As such, only a 50-foot creek setback from the top of bank will be required at these two pads. However, grading and drilling will be restricted to previously disturbed areas and no riparian vegetation will be removed. In addition, because the pads are not located outside of the 100-foot creek buffer zone applied to other pads, drilling and construction will be prohibited on these pads during the nesting bird season. Berming will also be established at these sites to contain migration of miscellaneous drilling materials and will be at a height at least one-foot above the 100-year base flood elevation to prevent secondary, indirect impacts to special-status species that have the potential to occur in adjacent areas. A 100-foot setback will be observed for all other pads/construction areas, except well pad Rock 85A. Rock 85A, which is a proposed new pad, is within 100 feet of an

unnamed blue-line stream, as shown on a standard 7.5-minute USGS quadrangle map. This blue-line stream is a small intermittent drainage that flows through a culvert underneath Price Canyon Road and connects with Pismo Creek. Because this drainage is currently degraded due to past land use practices and existing sedimentation impacts, construction will be allowed to occur within 50 feet of top of bank with establishment of appropriate one-foot berming as discussed above.

- C. The applicant may be allowed to construct within 30 feet of top of bank at Rock 85A if a complete restoration plan for the unnamed blue-line stream is submitted to the County prior to implementation of construction activities at this pad. Restoration shall include provisions for removal of non-native plant species and planting of native, riparian vegetation to enhance the habitat value for special-status species.
 - D. Construction (not including drilling activities) of those previously disturbed areas located within the buffer zone of 100 feet from both sides of Pismo Creek's banks (limited only to Signal 151, Morehouse 303, and Rock 85A) shall be monitored by a qualified biologist on a full-time basis. The biological monitor shall conduct pre-construction surveys for special-status wildlife species, maintain protective fencing, inspect equipment staging areas, and physically relocate/remove any special-status wildlife species entering the construction zone.
23. The following mitigation measures are recommended to mitigate impacts to oak trees due to project implementation. This includes protective measures to avoid and/or minimize impacts to oak trees designated for long-term preservation:
- A. **Prior to construction of Well pad 66C or Signal 113A**, to avoid the removal of an estimated 9 mature oak trees, the applicant shall implement condition 21 (modification of well pad Signal 66C to avoid tree removal). In addition, the northern corner of Signal 113A shall be realigned southward to avoid four existing mature coast live oak trees. These modifications shall be displayed on final project plans prior to construction; and,
 - B. **Prior to issuance of the first Notice to Proceed or Grading permit**, a Habitat Enhancement Plan containing site-specific oak tree protection and replacement procedures shall be prepared for the project. The Habitat Enhancement Plan shall clearly outline the procedures for protecting oak trees to remain in place during construction and provide details for replacing oak trees that are removed at a 4:1 ratio and those impacted at a 2:1 ratio. Final specifications of the Habitat Enhancement Plan shall be approved by the County and CDFG prior to construction of the 1st improvement. At a minimum, the plan shall contain the following provisions:
 - 1. Utilizing the oak tree survey data collected in 2003, final project plans shall clearly illustrate the size and location of all oak trees to be removed as part of the project and all oak trees to remain within 25 feet of construction activities. Prior to any construction, grubbing or tree

removal, each mature coast live oak tree within the vicinity of the subject pads shall be clearly marked for removal or protection;

2. Protective fencing shall be installed around each oak tree to remain in place. The fencing shall be installed prior to grubbing/construction and provide protection of the root zone of oak trees (the outer edge of the tree root zone is 1-1/2 times the distance from the trunk to the drip line of the tree);
 3. To further protect oak trees to remain in place, a certified arborist shall be retained by the applicant to perform any necessary trimming of oak tree limbs overhanging existing well pads and newly proposed well pads. This shall be conducted prior to allowing construction equipment and drilling rigs within well pads to avoid and/or minimize the potential for inadvertent damage to oak trees limbs (i.e., from drilling rig booms, etc.);
 4. Approximately 25% percent of the Replacement oak trees shall be from 15-gallon stock and the remaining 75% from vertical tubes or deep, one-gallon container stock. The 15-gallon stock shall be evenly placed along the perimeter of the most visually prominent well pads as seen travelers on from Price Canyon Road (i.e., Maino 16NW);
 5. Replanting shall be completed in the fall season as soon as feasible (i.e., upon completion of grading within a given area) and by a qualified individual familiar with native vegetation;
 6. Location of newly planted oak trees shall adhere to the following whenever possible: on the north side of and at the canopy/dripline edge of existing mature native trees; north-facing slopes; within drainages swales; where topsoil is present; and if clustered, at least 10' "on-center" separation between each tree. Tree spacing will average approximately 15 feet on-center. Some clustering is acceptable to maintain a more natural appearance; and,
- C. Newly planted trees shall be maintained until successfully established. This shall include protection (e.g., caging, tree shelters) from burrowing and browsing animals (e.g., deer, rodents), regular weeding (minimum of once early fall and once early spring) of at least a 3-foot radius around the plant base and adequate watering (i.e., drip irrigation system). Heavy mulching consisting of local oak leaf litter/mulch so seedlings are exposed to local mycorrhizal fungi to enhance survivability and growth is also recommended. Irrigation shall be slowly terminated over a 3-year period. If possible, planting during the warmest, driest months (June through September) shall be avoided. Replacement oak trees identified as dead and/or diseased during the monitoring period shall be replaced accordingly.
24. The following measures shall be implemented to compensate for the permanent loss of vegetation resulting from project implementation and potential long-term degradation of adjacent habitat areas from projected long-term utilization of the site:

- A. **Prior to issuance of the first Notice to Proceed or Grading permit**, the applicant shall dedicate an open space easement within the PXP property for permanent preservation in perpetuity. The dedicated easement shall be sufficiently sized and contain suitable habitat to accommodate a portion of the required oak replacement (estimated at 398 total), Pismo clarkia planting, and Well's manzanita planting. A conceptual location for the easement with approximate boundaries has been identified directly southwest of Signal 9N (refer to Figure 5.5-3 of the Final EIR). Final specifications of the dedicated easement (size and location) shall be reviewed and approved by the County and CDFG prior to construction of the 1st improvement. In addition, future equipment staging areas, access routes, and additional well pads shall be prohibited in the dedicated easement area; and,
- B. The Habitat Enhancement Plan (see Condition 22) shall also contain measures to offset impacts to Pismo clarkia, Well's manzanita and oak woodland within the dedicated easement area. Specifically, the Habitat Enhancement Plan shall include species lists, installation and maintenance methods, performance criteria, and monitoring protocols for enhancing existing habitats within the dedicated easement area. At a minimum, the plan shall contain the following additional provisions:
1. Procedures to further mitigate permanent loss of California live oak woodland by augmenting existing oak woodland habitat within the dedicated easement with a portion of the required 4:1 ratio oak tree plantings;
 2. Estimated permanent loss of 12 Well's manzanitas will also be compensated at a replacement ratio of 4:1 within selected areas of the dedicated easement containing appropriate soil conditions (i.e., chaparral and coyote brush scrub habitat areas);
 3. Planting of Pismo clarkia as required by Mitigation Measure BIO-3 shall occur within selected areas of the dedicated easement to augment existing populations, concentrating the majority of seed dispersal along the northeastern perimeter of the existing oak woodland habitat;
 4. Installation of all replacement planting and/or seed dispersal shall be conducted within the appropriate season to promote survivability (i.e., fall/winter). If possible, planting during the warmest, driest months (June through September) shall be avoided;
 5. Procedures to ensure eradication of exotic plant species (i.e., pampus grass, tree tobacco, etc.) within the dedicated easement. This shall include provisions for controlling the spread of exotic species throughout the Phase IV expansion area; and,
 6. An implementation schedule which emphasizes initiation of the Habitat Enhancement Plan within the 1st year of improvements authorized under this approval. The schedule shall outline the sequencing of all mitigation

planting and timing for long-term monitoring and maintenance of the dedicated open space easement through the life of the project.

Cultural Resources

25. Cultural Resource sites SLO-353, SLO-652, and SLO-1266 shall be avoided. Any future ground disturbances within a 150-foot buffer from the sites shall be subject to a subsurface archaeological excavation program to assess artifact presence in these areas. If artifacts do exist and cannot be feasibly avoided, a Phase 2 archaeological significance assessment program, and, if necessary, a Phase 3 data recovery mitigation program, shall be carried out by a qualified archaeologist and all construction activity within the sites and buffer areas shall be monitored by a qualified archaeologist and Native American monitor. The archaeological sites and buffer areas shall be indicated as “Environmental Sensitive Areas” on grading plans. If construction is proposed within 100 feet of the buffer areas, the areas shall be temporarily fenced to protect from disturbance. All significance assessment and mitigation activities shall be funded by the applicant. In addition, such buffer zones shall be observed for Areas A, B, and C.
26. In the event that unknown cultural remains are encountered anywhere within the project area during construction, activities shall be terminated or redirected to another area until a qualified archaeologist can be retained to evaluate the potential significance of the finds in a Phase 2 archaeological significance investigation or PXP shall have the option to relocate work permanently without need to conduct further studies at that location. Relocation of work and any subsequent archaeological investigation would be done in consultation with the County of San Luis Obispo. If they are significant and cannot be feasibly avoided, then a Phase 3 data recovery mitigation program shall be performed by a qualified archaeologist, and all construction activity within the site and 150-foot buffer area shall be monitored by a qualified archaeologist and Native American monitor. All Phase 3 significance assessments and Phase 3 mitigation activities shall be funded by the applicant.

Geology and Soils

27. In compliance with the Land Use Ordinance, the applicant will prepare and implement a Sediment and Erosion Control Plan (SECP) for the proposed project. The SECP will include:
 - A. Slope surface stabilization measures, such as temporary mulching, seeding, and other suitable stabilization measures to protect exposed erodible areas during construction, and installation of earthen or paved interceptors and diversion at the top of cut or fill slopes where there is a potential for erosive surface runoff;
 - B. Erosion and sedimentation control devices, such as energy absorbing structures or devices, will be used, as necessary, to reduce the velocity of runoff water to prevent polluting sedimentation discharges;
 - C. Installation of mechanical and/or vegetative final erosion control measures within 30 days after completion of grading;

- D. Confining land clearing and grading operations to the period between April 15 and October 15 to avoid the rainy season;
 - E. Minimizing the land area disturbed and the period of exposure to the shortest feasible time;
 - G. The SECP will be prepared in accordance with the Land Use Ordinance; and,
 - H. Install long-term drainage devices at new/modified well pads, including headwalls, basins, culverts with down-drains and energy dissipating devices (riprap or diffusers).
 - I. In compliance with Section 23.05.020 – Grading, the applicant will prepare a grading plan for the project.
28. **Prior to issuance of the first Notice to Proceed or Grading permit**, the applicant will comply with the requirements under a general stormwater construction permit, which may be required by the RWQCB for the project. Such requirements may include preparation of a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP would include provisions for the installation and maintenance of Best Management Practices to reduce the potential for erosion of disturbed soils at the Project site.
29. To minimize any impact on groundwater downgradient from the site, petroleum products should be removed from wastewater generated in the oil recovery process prior to reinjection. In addition, the water quality of the shallow aquifer zone beneath and downgradient from the site should be monitored regularly to detect any water quality impacts of project activities (e.g., steam or produced water injection). This can be accomplished by monitoring of wells on the property. The number of wells and well locations and frequency should be adequate to detect any impacts to water quality as determined by the appropriate jurisdictional authority. Copies of any report shall be provided to the County. A water quality monitoring plan shall be submitted and approved by the County.

Paleontological Resources

30. **Prior to issuance of the first Notice to Proceed or Grading permit**, the applicant shall retain a qualified paleontologist to develop a paleontological mitigation monitoring plan for the review and approval by the County of San Luis Obispo that includes the following:
- A. Prior to construction, the applicant will retain a qualified paleontologist to implement the mitigation plan and maintain professional standards of work.
 - B. A qualified monitor will perform full-time monitoring of all grading, enlargement of pads and all other open excavation work in native sediments. Monitoring will include inspection of exposed surfaces and microscopic examination of matrix. The monitor will have authority to divert grading away from exposed resources temporarily in order to recover the specimens and contextual data. PXP shall have

the option to relocate work permanently without need to conduct further studies at that location. Relocation of work and any subsequent paleontological investigation would be done in consultation with the County of San Luis Obispo. Cooperation and assistance from on-site personnel will greatly assist timely resumption of work in the area of the discovery.

1. If the discovery meets the criteria for a fossil locality, formal locality documentation activities will be performed.
 2. If microfossil localities are discovered, locality documentation activities shall include the collection of matrix material for processing. These activities may include use of equipment to excavate fossil-containing soils, and establishment of stockpiles away from the construction area. Testing of stockpiles shall consist of screen washing small samples (200 pounds) to determine if fossils are present. Productive tests shall result in screen washing of additional matrix from the stockpiles to a maximum of 6000 pounds per locality.
- C. Fossils recovered shall be prepared, identified and cataloged, and donated to an accredited repository approved by the County of San Luis Obispo. Any resources determined not to meet significance criteria shall be offered to local schools for use in educational programs.
- D. The principal investigator shall prepare monthly progress reports to be filed with the applicant and the County of San Luis Obispo. The principal investigator shall prepare a final report to be filed with the applicant and the County of San Luis Obispo. The report shall include a list of resources recovered, documentation of each site/locality, interpretation of resources recovered and shall include all specialist's reports as appendices.

Noise

31. Excluding drilling activities, no use of heavy equipment or heavy-duty trucks shall occur between 7 p.m. and 7 a.m. As shown in Figure 5.9-4 of the Final EIR, drilling activities at wells pads Signal 113D and Morehouse 303 would cause an exceedance of the 45 dBA L_{eq} . Therefore, noise attenuation blankets or other devices with a sound transmission class of 25 or greater shall be installed at a height exceeding the highest exhaust outlet and in a line-of-sight alignment so as to maximize noise attenuation at these two well pads sites. Equipment engine covers shall be in place and mufflers shall be in good condition.

Hazards/Risk of Upset

32. **Prior to initiation of well drilling activities**, the applicant shall complete table-top and field emergency training with CDF/County Fire, County Hazardous Materials Team, and DOGGR. PXP shall provide CDF/County fire with actual costs to cover the expenses of continuous training exercises, including overtime and equipment replacement. The amount of this training shall not exceed \$8,000 every two years or \$4,000 annually.

33. The applicant will complete annual inspections with the CDF/County Fire Department to ensure compliance with the County adopted California Fire Code, currently the 2001 version.
34. The applicant shall submit a Notice of Intent and obtain written approval from the State Oil and Gas Supervisor **prior to drilling, reworking, injecting into, plugging, or abandoning any well**. The Notice of Intent will be reviewed by DOGGR on an engineering and geological basis. PXP will be required to submit detailed geological and engineering information to support the project. Approval will be subject to protection of the public and the environment by using adequate blowout prevention equipment. DOGGR will monitor potential risks from critical wells (wells located in close proximity to Price Canyon Road and the UPRR railroad) as part of their well application review process.
35. **Prior to issuance of the first Notice to Proceed or Grading permit**, PXP shall develop a contingency plan for proper wastewater handling in the event that adequate wastewater injection capacity cannot be developed.
36. During water injection and steaming operations, PXP shall make daily inspections of drainages, known nearby well sites, and surface seeps within the 2,000 feet of the injection locations to identify oil release at the ground surface. In the event of a spill release, the applicant shall immediately notify the appropriate regulatory agencies of the discovery and implement spill response, mitigation, and clean-up activities. As required by DOGGR, abandoned oil wells identified to have the potential to release oil to the environment shall be re-abandoned to current DOGGR standards.
37. The applicant shall store on-site cleanup materials including diking materials and absorbent material such as pads and booms that will be accessible to the fire department in case of emergency. The applicant shall provide CDF/County Fire with two gas detectors for the closest responding fire engines or HAZ MAT Unit who would respond to an incident at the oil fields or along the travel routes to the refinery. These detectors shall be capable of detecting combustible levels and Hydrogen Sulfide (H₂S) levels and will be the equivalent of the iTX Multi-Gas Monitor.
38. **On an annual basis**, the applicant shall provide CDF/County Fire and County Environmental Health with their emergency response plan for review and approval. The plan will include procedures and annual training exercises with CDF/County Fire, the County Hazardous Materials Team, and other appropriate agencies on handling a petroleum or hydrogen sulfide emergency at the Project Site. See Mitigation Measure HAZ-1A.
39. **Prior to issuance of the first Notice to Proceed or Grading permit**, the applicant shall produce a CDF/County Fire a Fire Hydrant System plan for approval.
40. **Prior to issuance of the first Notice to Proceed or Grading permit**, the applicant shall submit a vegetation management plan to CDF/County Fire for approval. This will identify measures to minimize the risk of wildfires due to operation of existing and proposed new

pipelines and powerlines. It will also make recommendations for protection of such facilities from a wildfire. Based on those recommendations, CDF will make requirements in accordance with the PRC.

41. **Prior to issuance of the first Notice to Proceed or Grading permit**, the applicant's Spill Prevention Control and Countermeasure Plan (SPCC) for the Arroyo Grande oil field should be updated to address the increased production and spill scenarios. The SPCC update should include measures to both reduce the likelihood of an oil spill entering the creek through engineered containment devices and regular monitoring. Furthermore, approval of the Notice of Intent by DOGGR will be subject to proper oil spill H₂S contingency plans and protecting all subsurface hydrocarbons and fresh waters by using approved drilling and cementing techniques.